

Mitsubishi package air conditioner optional equipment  
Drain Pump installation manual

Model PAC-SH94DM-E  
PKA-RP.KAL  
PKFY-P.VKM-E

- The Drain Pump should be installed on the wall next to the left side of the indoor unit for use.
- By installation of the Drain Pump, it is possible to run the drain tube and refrigerant tube together vertically.
- The Drain Pump should be installed after the indoor unit is positioned on the wall.
- \* Be sure to carefully read this manual and the installation manual for the indoor unit first before installation of the Drain Pump.

THE FOLLOWING SHOULD ALWAYS  
BE OBSERVED FOR SAFETY

- Be sure to read "THE FOLLOWING SHOULD ALWAYS BE OBSERVED FOR SAFETY" before installation.
- Be sure to observe the warnings and cautions specified here as they include important items related to safety.
- Precautions are classified as follows, according to the level of potential danger.



WARNING

Denotes a condition or operation which, if handled incorrectly, may lead to serious injury or death.



CAUTION

Denotes a condition or operation which, if handled incorrectly, may lead to bodily injury or property damage.

- After installation work has been completed, explain the "THE FOLLOWING SHOULD ALWAYS BE OBSERVED FOR SAFETY", use, and maintenance of the unit to the customer and perform the test run to ensure normal operation.
- Both the installation manual and operation manual must be given to the user for keeping. These manuals must be passed on to subsequent users.



WARNING

Ask a dealer or an authorized technician to install the unit.

If the unit is installed incorrectly, water leakage, electric shock, or fire may result.



WARNING

For installation work, follow the instructions in the installation manual.

If the unit is installed incorrectly, water leakage, electric shock, or fire may result.



CAUTION

Make sure that the refrigerant pipes are well insulated to prevent dew condensation.

Incomplete insulation may cause dew condensation on the surface of the pipes, wetting the ceiling, floor, and other important property.



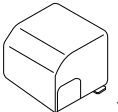
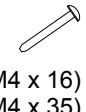

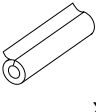
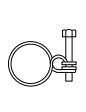

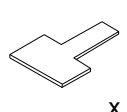
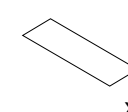
CAUTION

Make sure that the drainage piping is carried out correctly following the installation manual and that it is insulated in order to prevent dew condensation.

Any deficiency caused by piping may result in water leakage, wetting the ceiling, floor, and other personal property.

1. Accessories

(Make sure of the following items attached with the Drain Pump before installation.)

(A) Drain Pump	(B) Screw	(C) Drain tube	(D) Drain tube cover	(E) Tube clip	(F) Pull tight	(G) Paper pattern	(H) Wiring plate
 x 1	 (M4 x 16) x 1 (M4 x 35) x 6	 x 1	 x 1	 x 1	 x 1	 x 1	 x 1

\* The items (B) – (F) are packed between main body and cover of the Drain Pump. Take them out after the cover removed.

2. Overall dimensions and required installation space (mm)

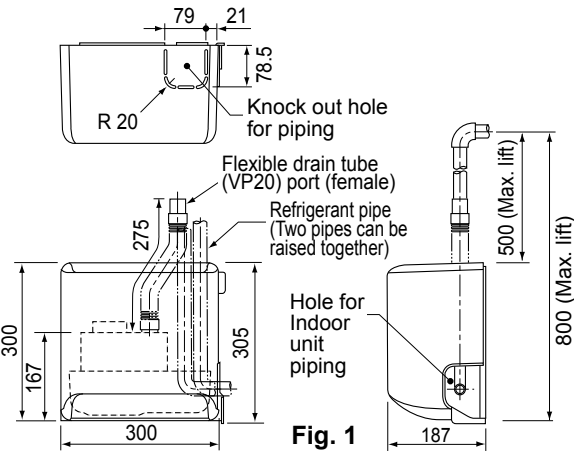


Fig. 1

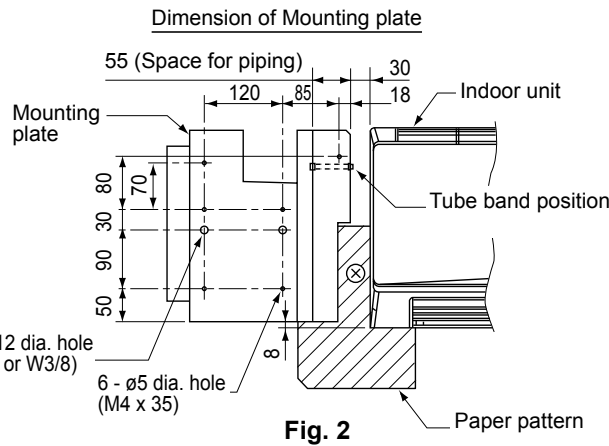


Fig. 2

Required space for installation of Drain Pump

[Maintenance space]

\* In case that there is a rim at the corner of ceiling, consider the dimension of the rim before installation.

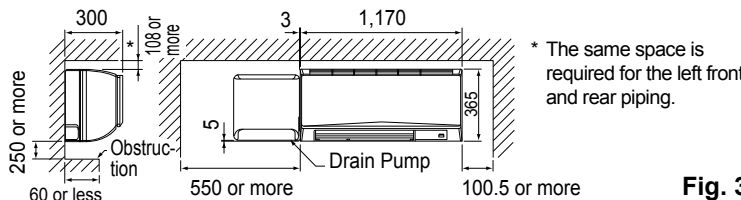


Fig. 3

3. Before installation of the Drain Pump (\* Position the indoor unit first.)

3-1 Set up of the Drain Pump

- Remove the cover and the mounting plate which is fixed on the back of the Drain Pump each.
  - \* The packaging material which is put between the cover and the main body of Drain Pump is only for cushion for transportation. Take it out as it is unnecessary.
  - \* Take out the accessories.
- Run the pull tight (F) attached through the square hole on the mounting plate.
- Cut the knock out hole on the cover with a nipper and etc.

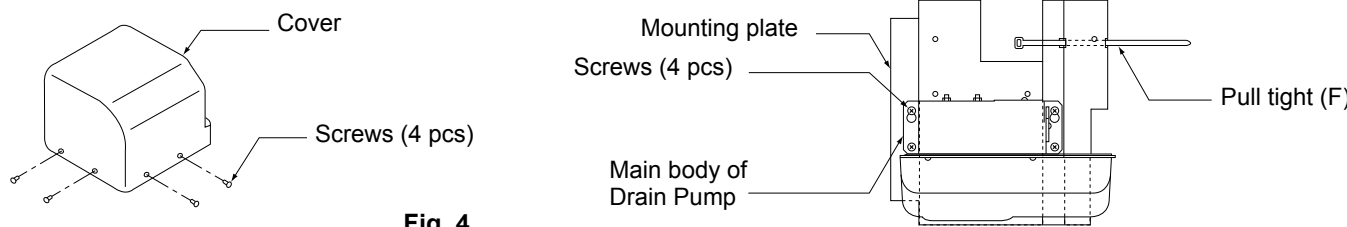


Fig. 4

\* The screws removed will be used later. Keep them not to lose.

3-2 Set up and installation of the indoor unit (\* See the item of piping connection set up in the installation manual of the indoor unit.)

(1) Make the knock out hole for left side piping on the left side panel of the indoor unit.

(2) Pull out the drain cap from the left drain outlet.

- Hold the convex section at the end and pull the drain cap.

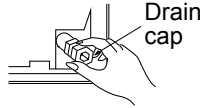


Fig. 5-1

(4) Insert the drain cap into the right drain outlet.

- Insert a screwdriver or similar tool into the hole at the end of the cap and insert the cap fully into the outlet.

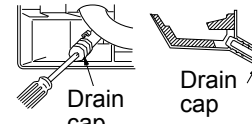


Fig. 5-3

(3) Remove the drain hose from the indoor unit.

- Hold the end of the drain hose (a) (marked by the arrow) and pull the drain hose out (b).

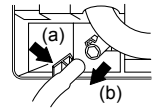


Fig. 5-2

(5) Insert the accessory drain hose (C) into the left drain outlet.

- Insert the hose up to the base of the drain pipe connection opening.
- \* Make sure that the hook on the drain hose is securely caught on the projection in the opening in the drain pan.

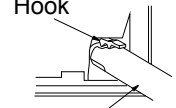


Fig. 5-4

(6) Install the indoor unit.



CAUTION

The indoor unit must be installed horizontally.

Otherwise, the water can leak and it will make the wall dirty.

4. Installation of the Drain Pump

4-1 Fixing of the mounting plate

- The installation place should be carefully considered if it is proper for installation. If it is not strong enough to hold the unit, make it stronger by using board or beam before installation.

(1) Decide the installation position of the mounting plate by using the paper pattern (G) attached.

(\* The left end of the indoor unit should be marked in advance.)

- 1) Fix the paper pattern on the wall with the screw (B) (M4 x 16) attached with putting it to the left end of the indoor unit for positioning of the Drain Pump as shown in the drawing.
- 2) Position the mounting plate with pushing it against the paper pattern.

(2) Fix the mounting plate with the screws (B) (M4 x 35) attached. Fix the mounting plate using the 5 dia. holes. (6 locations pointed by arrows in the drawing.)

In case that the mounting plate is fixed by fixing bolts (through bolts, bolt anchors, or nut anchors), get M10 or W3/8 screws locally and put them into two ø 12 holes of the mounting plate to fix it.

(3) When the mounting plates is installed, remove the paper pattern.

(4) Check that the mounting plate is level and positioned correctly with the indoor unit. (Fig. 2)

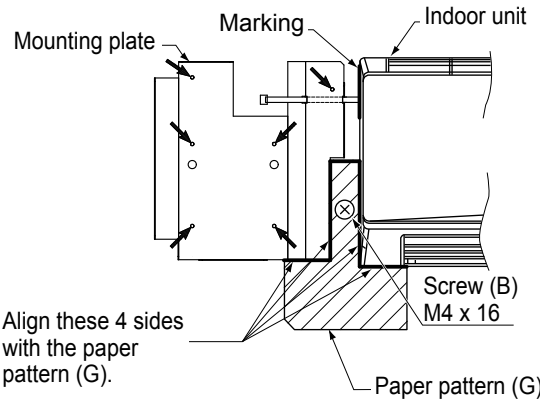


Fig. 6

## 4-2 Installation of the Drain Pump

- Fix the Drain Pump on the mounting plate
- Install the screws to the 2 upper holes (indicated by the arrows shown in Fig. 7) of the mounting plate by hand tightening them about halfway, and then hook the Drain Pump on the screws.
  - Level the Drain Pump by using a spirit level. Then tighten the 4 screws securely to fix the Drain Pump.



**CAUTION**

**The Drain Pump must be leveled.**

Otherwise, the water leaks and it makes wall dirty.

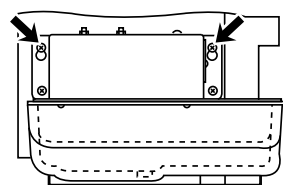


Fig. 7

## 5. Installation of refrigerant piping (\* See the item of refrigerant piping connection in the Installation of the indoor unit.)

- Install the refrigerant piping using the left piping method.
- When the refrigerant piping and drain pipe are routed vertically together, route the piping through the space in the mounting plate.
  - Be sure that the indoor unit must be positioned at the place where was marked at 4-1.
  - The bending radius of the refrigerant pipe must be R80 or less.
  - The tube raised should be fixed with the pull tight which was put through the square hole of the mounting plate.
- Position the refrigerant piping in the left piping space of the indoor unit as shown in Fig. 8.

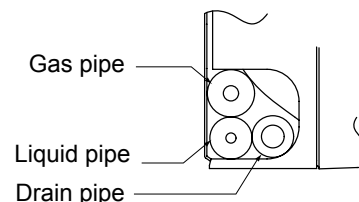


Fig. 8

## 6. Installation of drain piping

### 6-1 Connection of drain tube

- Connect the drain tube (C) which is installed to the left side drain port of the indoor unit to the drain port of the Drain Pump.
- Fix the connection port securely with the tube clip (E) attached.
- Connect the flexible drain tube, which is run from the top panel of the Drain Pump, to the local drain piping. The part connected must be closed by vinyl chloride type glue.
- Insulate the flexible drain tube which is run from top panel of Drain Pump with the drain tube cover (D) attached.

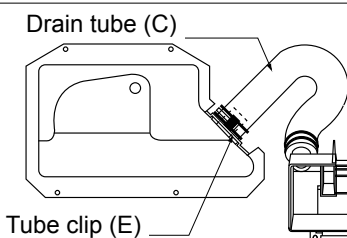


Fig. 9

### 6-2 Installation of drain piping

- The drain pipe should be installed in accordance with the following procedure.
  - The drain pipe should be installed so that the outdoor side (drain side) becomes falling slope (1/100 or more) and do not make trap or peaks.
  - The horizontal run of the drain pipe should be 20 m or less. In case that the tube is crosscut sawing for long distance, some support brackets should be installed to prevent the pipe from being wavy. Never install the air bleeder. The drain will blow out.
  - The hard vinyl chloride pipe VP20 (outer dia. 26 mm) should be used for the drain pipe. And the part connected must be closed by vinyl chloride type glue to prevent water leak.
  - Be sure to wrap the drain pipe with adiabatic material (foam polyethylene: specific gravity 0.03, thickness 9 mm or more) available on the market.
  - Do not install stink trap to the outlet of the drain pipe.
  - The outlet of the drain pipe should be installed the place where it is not possible to cause stink.
  - In case that plural drain pipes are installed, install the main pipe so that it comes approximately 10 cm lower than the drain outlet and the pipes must be made of material of VP30 or similar and they should be falling slope (1/100 or more).
  - It is possible to raise the outlet of the drain pipe to 80 cm (max. lift) from bottom face of Drain Pump. However, if there is a horizontal run pipe connected to the vertical section of the drain pipe, water will overflow from the drain pan. This is because too much water will flow back when the operation stops. Therefore, the drain pipe must be raised vertically. Also, install the flow back stop at the highest point to prevent the water from flow back from horizontal part of the pipe. See the drawing below.

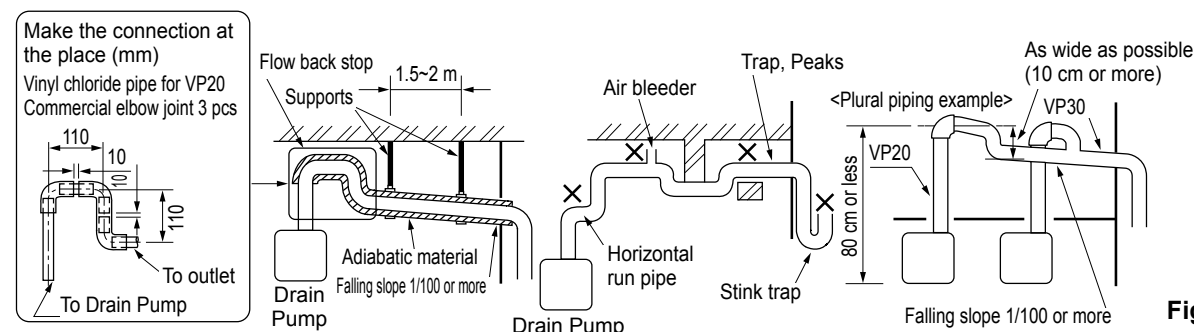


Fig. 10

## 7. Electric wiring

### 7-1 Set up of the indoor unit (\* Confirm that the power is off before starting the installation work.)

- Remove the panel of indoor unit and the electric box cover. (\* See the indoor unit installation section in the installation manual of the indoor unit.)

### 7-2 Electric wiring

- Route the wiring through the left piping space of the indoor unit to the electric box as shown in Fig. 11.
- Connect the lead wires to the connectors of the indoor unit control board, and then place the slack in the wires in the wiring storage space of the Drain Pump. (Fix the lead wires with the clamps.)

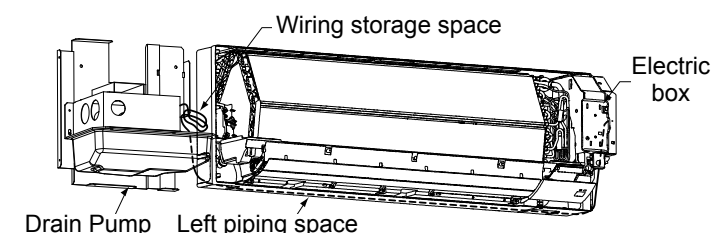


Fig. 11

### 7-3 Electric wiring operation

- Pull out the electric box as far as necessary to connect the lead wires to the control board connectors "CNP" and "CN4F".
- Connect the lead wires with connectors to the control board connectors "CNP" and "CN4F". At this time, remove the bypass connector (will be unused) from the terminal CN4F of the control board.
- Be sure not to have the lead wires touch the heat generator (heat sink) on the control board.

#### Electric wiring operation

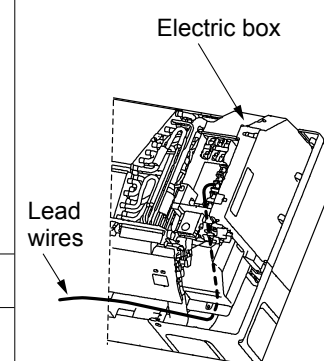


Fig. 12

#### Wiring plate

- Affix the wiring plate (H) to the rear of the panel.

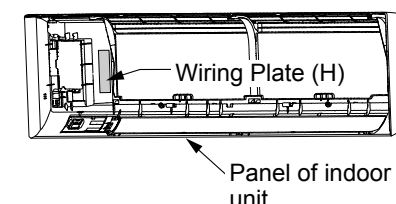


Fig. 14

- After completing the electric wiring operation, make sure that the hooks are securely caught on the unit, and then put the electric box cover and panel back in place.

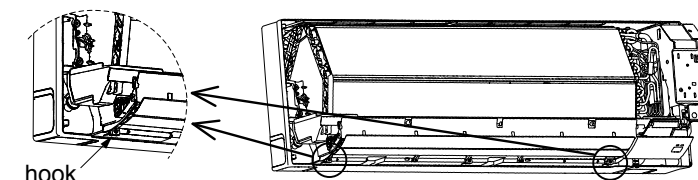


Fig. 15

### Electric circuit diagram

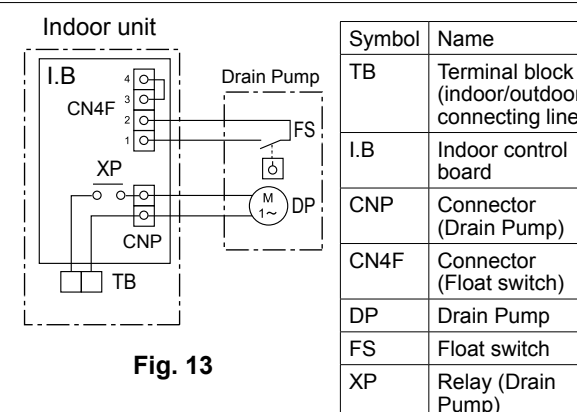


Fig. 13

Note: □ stands for terminal connection.  
□□ stands for connector joint.

## 8. Test run

- After the installation of the Drain Pump has been completed, make sure that the drain works correctly and the water does not leak from any part of connection.
- Pour water  
Pour water approximately 800 cc to the drain pan. (\* See the drain pipe [checking the drain flow] section in the installation manual of the indoor unit.)  
(\* If the water is poured too much, it is possible that the drainage does not work due to alarm stop by activation of drain over flow protection device.)
  - Test run  
In accordance with the procedure for test run in the installation manual for the indoor unit, operate the air cooling and make sure that the drainage works and the water does not leak.  
\* When the Drain Pump is installed in winter season, the water must be drained.  
To drain water, remove the drain plug under the Drain Pump. Prepare the pan to receive drain.  
When the drainage has been completed, put the drain plug back in place.
  - After checking, put the cover back in place.  
\* Make sure that the left end of the indoor unit perfectly comes on the point marked at 4-1. (If they do not match, the cover will not be able to be installed or there will be a gap between the cover and the indoor unit.)